



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/988,461	11/20/2001	Henry Cholod	VRO-005.01	8659

7590

03/17/2006

GARY LOSER
VARIAN SEMICONDUCTOR EQUIPMENT ASSOCIATES
35 DORY ROAD
GLOUCESTER, MA 01930

EXAMINER

RIVELL, JOHN A.

ART UNIT

PAPER NUMBER

3753

DATE MAILED: 03/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

6

Office Action Summary	Application No. 09/988,461	Applicant(s) CHOLOD, HENRY	
	Examiner John Rivell	Art Unit 3753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 1/20/06 (amendment).

2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-22 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1-22 is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some * c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____	6) <input type="checkbox"/> Other: _____

DETAILED ACTION

Applicant's arguments filed January 20, 2006 have been fully considered but they are not persuasive.

Claims 1-22 remain pending.

Claim Objections

Claim 22 objected to because of the following informalities: Based on the amendment January 20, 2006, claim 22 now includes plural recitations concerning the "holes (being) arranged in a circular pattern" whose "diameter is greater than the width of the (inlet) opening". Compare for example, claim 22, lines 13-176 with lines 21-25. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-8 and 10-21 are rejected under 35 U.S.C. §102 (b) as being anticipated by Holicer.

The patent to Holicer discloses in figure 5 and at column 6, lines 29-71 "a pressure relief valve comprising: a housing (shown generally at 1) having a passage (from conduit 16, through channel 53a, branch 53 to an outlet at 60) formed therein for

Art Unit: 3753

connection (53a) with a fluid source (at 16) and a seal surface (seat 57) positioned about an opening (53a) in the passage, the housing including a discharge opening (60) for relieving pressurized fluid from the housing during operation of the relief valve; a valve member (54) positioned within the housing, the valve member being movable along an axis within the housing (at branch 53) to selectively engage the seal surface in a sealing relationship, the housing being sized and shaped to substantially restrict movement of the valve member (54) to a direction parallel to the axis by an arrangement of through holes (55) in the valve member (54) to restrict fluid flow when the valve member (54) is in a closed position (as shown in fig. 5) during normal operating conditions with the seal surface being engaged in the sealing relationship and when the valve member is separated from the seal surface, the through-holes permit fluid to flow through the valve member, the through-holes are commonly shaped (e.g. they are all cylindrical in shape and sized depending on the desired volume of fluid pressure to be relieved by the valve and the size of the opening in the passage (as determined by the designer of the valve to function in the desired environment) and are symmetrically arranged in a circular pattern (here the two ports illustrated have their centers arranged 180 degrees apart which would equate to the twelve o'clock and six o'clock position of a clock face which forms a circular pattern) and evenly spaced about the circumference of the valve member (54) such that the diameter of the circular pattern (of the centers of the ports 55) is greater than the width of the opening (at inlet 53a) in the passage for allowing fluid to evenly dissipate through the valve member (54) so that a proper alignment of the valve member (54) is maintained as the valve member

Art Unit: 3753

(54) moves from the closed position to an open position; and a spring (58) coupled to the valve member and a portion of the housing, the spring (58) applying a predetermined spring force to the valve member (54) to bias the valve member (54) into contact with the seal surface (57) said predetermined spring force maintaining the valve member in the closed position during the normal operating conditions and, wherein the valve member (54) separates from the seal surface (57) upon application of a fluid pressure force on the valve member that is greater than the predetermined spring force thereby allowing pressurized fluid to pass through the through holes (55) and the discharge opening (60) in the housing when an overpressure condition exists by the fluid pressure exceeding the predetermined spring force" as recited in claim 1.

Regarding claim 2, Holicer discloses that "the valve member has one or more through-holes (55) formed therein" as claimed.

Regarding claim 3, Holicer discloses that "the one or more through-holes are arranged on the valve member (54) to inhibit fluid flow through the through-holes when the valve member is sealing(ly) engaged with the seal surface" as claimed.

Regarding claim 4, Holicer discloses that "the seal surface (57) is generally annular in shape" as claimed.

Regarding claim 5, Holicer discloses that "the valve member (54) is disk-shaped having a generally circular bottom surface for engaging the seal surface" as claimed.

Regarding claim 6, Holicer discloses that "the holes (55) are arranged in a circular pattern (such as at the six o'clock and twelve o'clock position as illustrated) about the circumference of the bottom surface" as claimed.

Regarding claim 7, Holicer discloses that "the through-holes (55) are uniformly spaced about the valve member(54)" as claimed.

Regarding claim 8, Holicer discloses that "the through-holes (55) are commonly sized and shaped" as claimed.

Regarding claim 10, Holicer discloses that "the valve member (54) includes a spring recess (not numbered but clearly shown in the right side of the valve member 54) sized to receive at least an end of the spring" as claimed.

Regarding claim 11, Holicer discloses that "the spring recess (in the valve member) is centered on the axis of motion of the valve member (54)" as claimed.

Regarding claim 12, Holicer discloses that "the housing includes a second spring recess (within the retaining plug 59) sized to receive another end of the spring, the second spring recess being aligned with the spring recess in the valve member" as claimed.

Regarding claims 13-20, the limitations recited therein are merely repeated from the above claims and their anticipation by the reference is considered apparent from a comparison of the claims and the reference as above.

Regarding claim 21, Holicer discloses that "the pattern of through-holes (55) is circular in shape, and a diameter of the pattern is greater than the width of the opening (53a) in the passage" as claimed. Additionally, the valve member 54 includes "through-holes (55)... symmetrically arranged (here at least arranged 180 degrees apart) and evenly spaced about the circumference of the valve member (54) for allowing fluid to evenly dissipate through the valve member (54) so that a proper alignment of the valve

Art Unit: 3753

member (54) is maintained as the valve member (54) moves from the closed position to an open position" as amended.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holicer in view of Wahli et al. (German document No. 1947093).

The patent to Holicer discloses all the claimed features, as noted above, with the exception of having "an annular groove formed in the seal surface receiving an elastomeric seal ring" (claim 9) and "a base having a passage... a housing cover having a cylindrical cavity formed therein, the cover engaging the base and enclosing the seal surface within the cavity" (claim 22).

The document to Wahli et al., in figure 2 specifically, discloses that it is known in the art to employ a "base" (2) having a passage (at 13) therein, which "base" includes an "annular groove" 7 receiving an "elastomeric ring" 8 forming the seal surface (for claim 9) for the valve head 5 to seat upon to sealingly close the valve, and a "housing cover" at 1 defining a cavity therein and "enclosing the seal surface within the cavity" (claim 22) for the purpose of fluid tightly sealing the head and seat contact surface and to form a cavity within an attached "cover which cavity receives and encloses the valve elements therein. The differences here between Holicer and Wahli et al. are considered to be full functional equivalents of each other and represent mere alternative arrangements of seals (on the head of Holicer versus the seat of Wahli et al.) and valve

housing construction (valve enclosed by the "base" and closed off by a "cover" 59 in Holicer versus a "base" 2 and valve 5 enclosed by a "cover" 1 of Wahli et al.).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Holicer an annular groove receiving an elastomeric seal ring therein in the seat surface 57 and to employ a "housing cover" attached to the "base" and enclosing the valve elements within a cavity therein for the purpose of fluidly sealing the head and seat contact surfaces and to provide a housing for the valve as recognized by Wahli et al.

Response to Arguments

Regarding applicants specific argument that:

"Holicer fails to suggest or imply that the symmetrical arrangement of the through-holes about the circumference of the valve member in a circular pattern, that the through-holes are commonly shaped and sized depending on the desired volume of fluid pressure to be relieved and the size of the passage opening, and that the diameter of the circular pattern is greater than the passage opening as claimed in the present application. Specifically, Holicer does not suggest that the perforations 55 are commonly sized and shaped depending on fluid pressure to be relieved and the size of the passage opening as claimed in the present application. Furthermore, Holicer does not suggest that the perforations 55 are symmetrically arranged in a circular pattern greater than the passage opening. Because such a symmetric arrangement of the perforations 55 are not suggested or implied by Holicer, fluid is not allowed to be evenly dissipated through the valve member so that a proper alignment of the valve member is maintained as the valve member moves from the closed position to an open position as recited in claims 1, 13 and 22 of the present application."

is not well taken in view of the openings 55 and their location as depicted in figure 5.

The valve head 54 includes a plurality of perforations 55. As shown on figure 5, there are at least two, equal sized perforations 55 located at opposing positions 180

Art Unit: 3753

degrees from each other. Accordingly, the positions of the perforations represent a twelve o'clock and six o'clock position, respectively, as if appearing on a clock face. A circle with its center at the center of the disk 54, and its perimeter crossing the center of the perforations 55 demonstrates the "circular pattern" on which perforations 55 are located. Clearly this "circular pattern" is outside the diameter in the inlet at opening 53a. Each of these perforations are illustrated as being circular in cross section and cylindrical in shape from the inlet to the outlet. As fluid precedes from the inlet to the outlet it must pass through these perforations. At the very least, fluid precedes evenly through the at least two perforations. The act of fluid passing through the valve head 54 at the top and bottom, at the very least promotes even fluid forces upon the valve head. That is, the act of fluid flow through the perforations 55 at the top and the bottom of the valve head generates a drag force on the valve head 54 that is equal, due to the size of the perforations being equal and that the pressures across each perforation are equal, and in the same direction tending to oppose the force of the spring 58.

It is also noted that the disclosure of Holicer indicates "perforations" (emphasis added). Thus the disclosure in Holicer is taken to encompass a plurality of perforations including more than the two shown.

Applicants supporting comments that:

"The perforations 55 have a very definite and calculated total area as related to the total area of the ports 11 in a thimble 8 of the excess flow valve and the area around the thimble 8. The perforations 55 are calculated, designed and built to discharge a smaller volume of fluid than is required for excess flow check valve 6 to close; and that this is a matter of importance in that this relief valve may open and discharge a volume of fluid of predetermined quantity without causing the excess flow valve to close as disclosed at col. 6 lines 42-45"

while correctly identifying the function disclosed by Holicer, fails to logically persuade one that the flow of fluid through the valve head of Holicer would not evenly

Art Unit: 3753

dissipate through the valve to the extent that it would not permit the halve head to reciprocate evenly and repeatedly in the manner argued by applicant. That is, the logic applicant follows which would lead one to conclude that, because the perforations 55 of Holicer are "calculated, designed and built to discharge a smaller volume of fluid than is required for the valve to close", the flow of fluid through the valve will not evenly dissipate through the valve so that proper alignment will be maintained, is not understood given that in Holicer, as the value of pressure being relieved becomes less, because it is being relieved, the force acting against the spring eventually becomes less than the spring force causing the spring to close the valve. The noted portion of the specification of Holicer is considered to be demonstrative of the function of the valve disclosed therein to remain in an open condition at a value of pressure less than that value, acting on a smaller area when the valve is closed, causing the valve to initially open. Once the valve initially opens, when sealing contact against the seat is lost, the area of the valve disk 54 now subject to the initial pressure becomes greater thus causing the force exerted on the valve to be greater thus causing the valve to "snap" open against the force of the spring. Once the valve opens, the pressure value to which the inlet pressure is reduced to, will be less than that value of pressure which caused the valve to open in a manner exactly as that of the instant application's device.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

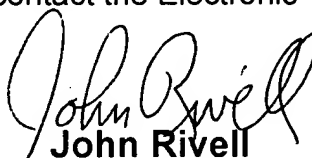
Art Unit: 3753

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Rivell whose telephone number is (571) 272-4918. The examiner can normally be reached on Mon.-Thur. from 6:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gene Mancene can be reached on (571) 272-4930. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


John Rivell
Primary Examiner
Art Unit 3753

j.r.